

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF VIRGINIA  
RICHMOND DIVISION**

ROBERT BENEDICT,

Plaintiff,

V.

HANKOOK TIRE COMPANY LIMITED et al.

Defendants.

Case No. 3:17-cv-109 REP

**PLAINTIFF'S MEMORANDUM IN OPPOSITION TO DEFENDANTS' MOTION TO  
EXCLUDE THE TESTIMONY OF PLAINTIFF'S EXPERT DAVID SOUTHWELL**

Plaintiff, through undersigned counsel, hereby responds in opposition to Defendants’ Hankook Tire Company Limited’s (“HTCL”) and Hankook Tire America Corporation’s (“HTAC”) Motion to Exclude the Testimony of Plaintiff’s Expert David Southwell. For the reasons expressed herein, the Motion must be denied.

## FACTUAL BACKGROUND

## I. General Tire Manufacturing Concepts Relevant to this Case

A radial tire consists of six primary components, each of which is engineered to serve specific functions in the tire. Kim Aff. (Ex. A) ¶ 6. These components include the inner liner, the tire beads, the body plies, the steel belts, the tread, and the sidewalls. Id.; see also Truck & Bus Tire Facts Catalogue (Ex. B) at 2. In building a tire, the various components which will comprise the finished product are assembled on a tire building machine. Kim Aff. (Ex. A) ¶ 5. The “uncured” or “green” tire is placed in a mold where specified heat and pressure are applied over specified times to “cure” or “vulcanize” the tire. Id. During this curing process, chemical

and physical changes take place so that the physical dimensions, properties, and chemical composition of a finished tire are different from those of a “green,” or uncured, tire. Id. With regard to the assembly of the ply and belt components, they are manufactured by embedding an array of parallel steel cords in an uncured rubber compound known as “skim coat” before they are assembled into the “green” or “uncured” tire. Southwell Rep. (Ex. C) at 18-19. The ply and belts are separate components from the inner liner and the belt skim coat applied to these components is different than the inner liner compound. Id. at 21. In order to prevent successive layers within rolls of uncured rubber (or rubber-coated components) from adhering, and to reduce the possibility of contamination, a liner separation is applied to the component. Southwell Report (Ex. C) at 18-19. The layers usually have patterns which impress upon the uncured rubber and can actually be seen on the component when the layer is removed to assemble the uncured tire. Southwell Rep. (Ex. C) at 19.

Once the belt skim coat has been mixed there is a limited “stock period” in which the component must be assembled into a tire. Id. at 19-20. If used during the component’s shelf life, the molecules of the belt skim coat applied to each component will integrate with each other and the interface between them will disappear—a process known as “interdiffusion.” Id. at 20. This component bond is then made permanent and strengthened through vulcanization. Id. at 19. However, if the components are used outside of their stock period (or the manufacturer has defined the stock period so as to allow the components to stale), the ability of the compound to achieve interdiffusion with the belt skim coat applied to adjacent components becomes compromised due to “scorch.” Id. at 20. Scorch is the process in which the molecules within the compound applied to a given component begin cross-linking with themselves—thereby heavily compromising their ability to interdiffuse across the interface with an adjacent component. Id.

Any incomplete adhesion caused by molecular cross-linking is made permanent through the vulcanization process. Id.

## **II. Design and Manufacture of the Subject Tire**

This case involves an alleged defective medium truck steer tire manufactured by HTCL (the “Subject Tire”). The Subject Tire is a Hankook Aurora TH08—size 425/65R22.5. HTCL Dep. (Ex. D) at 28:3-8. The Subject Tire was manufactured in the 48<sup>th</sup> Week of December 2005 at HTCL’s manufacturing plant in Daejeon, South Korea. HTCL Dep. (Ex. D) at 28:9-17; Defs.’ Ans. to Interrogatories (Ex. E), at 2 (response to no. 4).

Notably, TH08 tires were marketed to be “durable” tires suitable for any position (including steer tire). HTAC Pricing/Technical Guide (Ex. F) at 18. Defendants never promulgated any consumer recommendations that a TH08 tire be taken out of service at a certain age. Defs.’ RFA Resp. (Ex. G) at 2-7 (responses to numbers. 1-3, 5, 7, & 9). Rather, the sole criteria Defendants used to define the “tire life” of the TH08 (whether in internal documents or in consumer marketing) was the tire’s tread depth. HTAC Pricing/Technical Guide (Ex. F) at 23. Specifically, Defendants marketed the TH08 as requiring replacement once the tread depth reached 2/32 inches (the starting tread depth of a TH08 would have been 20/32 inches). Id. Moreover, the TH08 was intended to be both regroovable and/or retreadable. HTCL Dep. (Ex. D) at 81:13-17, 84:2-16.

### III. History of the Subject Tire.

The Parties agree that the Subject Tire was sold as a new tire to Metro Ready Mix (“Metro”) between January 31, 2006 and June 29, 2007. It is also agreed that the Subject Tire was not originally placed on the cement truck being driven by Mr. Benedict on November 14, 2014 (the “Cement Truck”). Rather, the Subject Tire had been affixed to the Cement Truck (then “Truck 30”) at the time the Cement Truck was purchased from Metro by Essex Concrete (“Essex”) on May 23, 2014. Truck 30 was redesignated as “Truck 769” once purchased by Essex. Cooke Dep. (Ex. J) at 9:10-12, 113:20-114:3. What is **not known by anyone** is what use, service, maintenance or storage the Subject Tire experienced from the time it was first purchased from Old Dominion by Metro, until it was conveyed by Metro to Essex as part of Truck #769, about 6 months prior to the crash.<sup>1</sup> Henshaw Dep. (Ex. I) at 177:11-178:17.

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<sup>1</sup> Defendants quote witnesses to argue that certain unknown tires on certain Metro trucks “were low on tread” and “a lot of tires were cracked and dry rot and wore out.” Mem. in Supp. at 3-4. For example, Defendants rely on the testimony of a former Metro employee, Greg Jones (“Mr. Jones”) to argue that Metro “no preventative maintenance on its fleet of cement ‘trucks.’” Mem. in Supp. at 3. However, Mr. Jones readily admitted he was *not* involved in maintenance in any way, *not* involved in the practice of changing tires, and knew nothing about which trucks were mothballed, the tires removed from those trucks, or the Subject Tire. Jones Dep. (Ex. K) at 25:11-21, 26:6-27:6, 33:13-16. Beyond the admitted lack of personal knowledge, the testimony is also contradicted by the testimony of the owner of Metro, Richard Henshaw, who bought over 30 Cement Mixers, all brand new, bought the Subject Tire brand new, and had three different entities regularly maintaining the vehicles and tires with voluminous records to support

After the Cement Truck was purchased by Essex from Metro, tires on all of the vehicles transferred to Essex were inspected and any tires evincing signs of damage or low tread were liberally replaced. Davis Dep. (Ex O) at 105:11-106:24, 107:3-108:14; 111:21-112:23; 176:10-177:21. The Subject Tire survived this first level of scrutiny. Id. Subsequently, on September 23, 2014, the Subject Tire had a three hundred mile inspection. Hale Dep. (Ex. P) at 64:16-24. This inspection consisted of a visual check for cuts and damage, as well as checking the tire air pressure and tread depth by both Mr. Hale and Mr. Davis. Id. at 23:18-26:16, 63:20-64:9. Once again, the Subject Tire surmounted inspection without issue, as the inspection revealed no cuts or damage to the Subject Tire. Id. Finally, the Subject Tire went through a Virginia state inspection on October 6, 2014, performed by William Taylor. Taylor Dep. (Ex. Q) at 15:5-16:6; 60:4-16, VA State Inspection (Ex. R) at 1. This inspection involves a visual inspection of the tires to determine there are no cuts. Taylor Dep. (Ex. Q) at 60:21-61:4. The Subject Tire passed the inspection without concern. VA State Inspection (Ex. R) at 1.

#### **IV. Plaintiff's Liability/Causation Expert – David Southwell**

##### **a. Professional Experience**

As noted in his CV, Mr. Southwell earned his degree from Prince Alfred College in 1979, and he also possesses a Master in Engineering from the University of South Australia. Southwell CV (Ex. S) at 1. Mr. Southwell is also a 1997 graduate of Firestone University in Akron, Ohio.

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conscientious maintenance of Metro's vehicles and tires. See Henshaw De. (Ex. I) at 21:14-22:8; 100:13-101:13; 102:11-21; Leete & Old Dominion Tire Invoices (Exs. L & M); and Blooming Idiots Maintenance Records, (Ex. N). Whatever may be inferred about tires the deteriorating from evidence cited by Defendants, the bottom line is *which* tires and from *which* trucks is *never* specified. Although very little is known about the history of the Subject Tire prior to May 2014, it is known that it had approximately 47% of its tread remaining and had no cracking, dry-rotting, or external signs of visible breakdown. Southwell Rep. (Ex. C) at 8; Davis Dep (Ex. O) at 105:11-106:24, 107:3-108:14, 111:21-112:23, 176:10-177:21; Hale Dep. (Ex. P) at 64:16-24, 23:10-26, 63:20-64:9; Taylor Dep (Ex. Q) at 15:5-16:6, 60:4-14; VA State Inspection (Ex. R) at 1.

Id. at 1. Mr. Southwell was educated on tire design, compounding, tire construction, tire field engineering, analysis of tire operating conditions and performance measurement and analysis.

Id. at 1-2. Mr. Southwell also completed the Stahlgruber Foundation Tire inspection, repair and retreading training in 2003, and has roughly 18 years of experience working for Bridgestone, Goodyear, and Dunlop entities. Id. at 2-4.

During his tenure working for Bridgestone Australia, Mr. Southwell engaged in various roles and leadership positions including product development, product improvement, new product performance testing, new product evaluation, liaison between design engineers and specification changes and ultimately working his way into the role of state technical service manager for all tire technical matters within SA/NT. Southwell Dec. (Ex. T) ¶¶ 2-6. As the State Technical Service Manager, Mr. Southwell was responsible for inspecting tires which were submitted for warranty, product liability, public liability claims, and would determine the mode and failure causation. Id. ¶¶ 6-7. Mr. Southwell also administered new product designs and developmental programs. Id. ¶ 7-8. In 1992 he was promoted to Bridgestone Australia's National Technical Field Service Manager. Id. ¶ 8. Upon his promotion, Mr. Southwell was responsible for making technical representations to major end users, original equipment manufacturers, and distributors and dealers of Bridgestone products. Southwell CV (Ex. S) at 3-4. Mr. Southwell also was responsible for developing and implementing formal technical procedures and techniques for use by technical service staff, to include production and distribution of all technical materials. Id. Mr. Southwell was also responsible for technical training at all levels in the distribution channel and for technical elements of 6 major tire retread plants. Id.

Mr. Southwell also has significant experience with product development. Southwell Dec. (Ex. T) ¶¶ 5, 8-12. At Bridgestone, he was responsible for preparing compound and construction specifications for new and revised products, recommending and implementing changes to a product design and product design specifications, test track evaluation of dynamic tire response characteristics, designing and conducting extensive field trials to assess/confirm suitability of new products and any required specification changes, and most importantly, Mr. Southwell was further in charge of any ongoing inspections/analysis of failed and damaged tires to ascertain mode and cause failure, and determining countermeasures where appropriate. Id. ¶¶ 2-8. Also entailed in his title of National Technical Field Service Manager was the responsibility for all public and product liability claims. Southwell CV (Ex. S). While holding this position, Mr. Southwell was also the chairman of the Technical Committee of the Australian Tire Manufacturer's Association, representing the tire industry to government, public and other relevant bodies. Id. After holding the position for nearly 8 years, Mr. Southwell took a short hiatus from the tire industry to start his own business. Id.

In 2001 Bridgestone approached Mr. Southwell for the position of its Asian Oceanic offices as the Technical Manager of Bridgestone Firestone Training and Communication Center in Bangkok, Thailand. Id. ¶ 10. As the newly appointed Technical Officer for the Asian Continent, Mr. Southwell was responsible for establishing formal in-service inspection procedures for all product groups (passenger and light truck, truck and bus, and industrial bias ply and radial ply tires designs). Id. Mr. Southwell was also in charge of training the technical service staff from Asia/Oceania, Middle East and African Bridgestone offices. Id. As the Technical Manager, Mr. Southwell trained technical staff in tire design, tire development, production processes, production quality systems, tire materials, inspection techniques to

determine failure mode and failure causation, assessment of designs for market suitability, impact of service conditions on performance and tire durability, tire dynamics and a tire's interaction with the vehicle and the road, tire performance monitoring, tire economics, international tire regulations, international design standards, and international test methods, as well as all aspects of field technical service work. Id.

In 2004 Mr. Southwell was approached by South Pacific Tires, a global manufacturer for Goodyear and Dunlop tire companies, to become its New Product Manager. Southwell Dec. (Ex. T) ¶ 11. As a new product manager, Mr. Southwell was responsible for new product design and development, managing tire testing, recommending and implementing construction and compound specifications to optimize a tire's performance levels, co-coordinating market trials for new tire products, and ensuring product compliance with all necessary legislative requirements. Southwell CV (Ex. S). In 2005, Mr. Southwell decided to open his own consulting firm and has been an independent tire consultant since that time. Southwell Dec. (Ex. T) ¶ 12.

Despite being familiar with Mr. Southwell's experience, Hankook criticizes Mr. Southwell for having "limited experience" in manufacturing aspects of tires. Mem. in Supp. at 5-6. This is patently false. Mr. Southwell worked in the Salisbury manufacturing facility during his employment with Bridgeston Australia and was the liason for the manufacturing staff for the Nong Khae manufacturing plant in Thailand. Southwell Dec. (Ex. T) ¶¶ 2-4, 10. In this position, he specifically trained the Bridgestone Technical Staff. Id. ¶ 10. During his time with South Pacific Tyres he worked at the Somerton manufacturing facility. Furthermore, as an independent consultant, he has conducted complete reviews of the Al Futtain (AMW) and CEAT manufacturing plants in Sri Lanka. Id.



b. Testimonial History

Mr. Southwell has never failed to qualify to testify as an expert with regard to tire failure analysis. Indeed, several months ago, Mr. Southwell testified in U.S. federal court in Tennessee after his qualifications and methodology withstood a similar Daubert challenge by HTCL to his liner pattern mark theory by Hankook. See Cone v. Hankook Tire Co., Ltd., No. 14-1122, 2017 U.S. Dist. LEXIS 7262 at \*20-22 (W.D. Tenn. January 9, 2017). There, Chief United States District Judge Breen rejected the same Hankook arguments being asserted in the instant case. Id. at \*15.

Moreover, just as it did in Cone, HTCL has now raised and mischaracterized Mr. Southwell's testimony in an Australian Coroner's Inquest relating to a tire tread separation death. The true sequence of events is explained by Mr. Southwell in his declaration, including HTCL's later cash settlement of the subsequent Australian civil case of the same death, based on Mr. Southwell's opinion. Southwell Dec. (Ex. T) ¶¶ 37-40. Judge Breen rejected HTCL's reliance on the Australian Coronal Inquest, finding that it had no bearing on the admissibility of Mr. Southwell's opinions, and ultimately concluding that Mr. Southwell is qualified as an expert in tire failure analysis. Cone, 2017 U.S. Dist. Lexis 7262, at \*6-7.

c. Opinions in this Case.

In preparing his opinions in this case, Mr. Southwell examined the Subject Tire on two occasions, using the forensic process detailed in his report. Southwell Report (Ex. C) at 7-8, 74-75; Southwell Dep. (Ex. U) at 22:13-23:8. He reviewed thousands of pages of Defendants' manufacturing regulations and specifications, photographs available of the Subject Tire and Companion Tire, accident reports, deposition testimony of various Parties' expert witnesses, deposition testimony of those involved in the service history of the Subject Tire, and the

maintenance records from Essex, Old Dominion, Blooming Idiots, and Metro Ready Mix. Southwell Rep. (Ex. C) at 6-7; 29. Mr. Southwell also examined the companion right front tire on the Cement Truck (the “Companion Tire”), and reviewed shearographs of the Companion Tire.<sup>2</sup> Id. at 29.

Based on the physical characteristics of the tire and the known evidence of the Subject Tire’s use and service, Mr. Southwell determined that the Subject Tire was used within its design parameters and that there was no evidence that the operating variables, such as impact or inflation, which were responsible for the catastrophic failure of this tire. Id. at 25-28. Rather, Mr. Southwell concluded that there were two manufacturing defects in the Subject Tire which caused its subsequent catastrophic failure: (a) the belts were not properly adhered to the body ply, or to each other; and (b) the body ply and belt skim coat were allowed to oxidise and become brittle and weak. Specifically, the Subject Tire’s insufficient inner liner gauge had increased the air permeability within the same, increasing the rate of oxidation of the skim coat and shoulder cushion components. Id. at 25. The oxidation led to degradation of their physical properties (notably tensile strength) to the point beyond which they could no longer sustain the loads placed upon them in service. Id. Moreover, component adhesion was compromised from the point of manufacture (which further predisposed the Subject Tire to catastrophic failure), as evidenced by the extensive liner imprints throughout the Subject Tire. Id. Mr. Southwell also concluded that HTCL had failed to use ordinary care in the manufacturing process in that (a) components were used in assembling the green tire that had prematurely cross-linked prior to assembly; and (b) an inner liner was used that was too thin to prevent excessive air migration. Id. at 19-20, 25. Mr. Southwell further opined that HTCL failed to use due care in its quality

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<sup>2</sup> A shearograph is a method of non-destructive testing that allows the examiner to visualize the inside of a tire’s components and structures.

assurance practices, which allowed the Subject Tire's defective condition to go undetected. Id. at 29-31.

To reach his opinion regarding the inadequate inner liner,

With regard to Mr. Southwell's conclusion regarding the improper use of components that had prematurely cross-linked, Mr. Southwell reached this opinion based upon forensic evidence observed in the carcass at the area of where the belts separate from the carcass ply—

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<sup>3</sup> One of Mr. Southwell's inspections was dedicated to the express purpose of confirming his measurements of the Subject Tire's inner liner. Mr. Southwell carefully measured the inner liner at 18 locations using a dial caliper. Southwell Dep. (Ex. U) at 102:14-25; 104:18-105:16. Mr. Southwell observed 4 locations on the Subject Tire where the inner-liner had become detached from the body ply skim coat, which is a separate and distinct component of the tire lying on top of the inner-liner. Mr. Southwell then measured the gauge of the inner liner "at as many position as I could reasonably across the tire . . . ." Id.

namely extensive “liner pattern marks.” Southwell Rep. (Ex. C) at 23-24. Mr. Southwell explains in great detail in both in his report and deposition the methodology and the scientific basis for concluding liner pattern marks are forensic evidence of premature cross-linking during the manufacturing process. Id. at 19-20; Southwell Dep. (Ex. U) at 73:14-77:20. Distilled to its essence, Mr. Southwell explains that the liner pattern on the belt skim coat should no longer be visible if interdiffusion is complete between the components because interdiffusion, by definition, involves the interface between the components disappearing as they become a homogenous whole. Id. at 19. Thus, where the original liner pattern can be observed on the components, it is an area of the tire where complete interdiffusion between the components was not achieved. Id. at 19-20. This phenomenon, in turn, is the result of HTCL factory personnel using rubber stock that had aged beyond its useable life at the time of manufacturing. Southwell Rep. (Ex. C) at 30-31; Southwell Dec. (Ex. T) ¶ 14-16.

### **ARGUMENT**

#### **I. A Visual and Tactile Examination of the Subject Tire by a Tire Failure Expert is the Accepted Method of Ascertaining the Cause of a Tire Failure in the Tire Industry.**

Although it is undisputed that Mr. Southwell is well-qualified and experienced expert in tire failure analysis who, among other things, conducted multiple forensic examinations of the Subject Tire, Defendants assert a number methodological criticisms to Mr. Southwell’s tire failure analyses. These challenges, for example, include that Mr. Southwell did not “calculate bond deterioration” or quantify oxidation through certain studies. Mem. in Supp. at 11, 17. Defendants also assert that Mr. Southwell failed to account for a myriad of data points, including: (a) variables impacting oxidation; (b) operating history/storage conditions of the Subject Tire (before and after the accident); (c) the stock period of the components used in the Subject Tire, (d) relevant specifications, such as the belt skim compound formula or intended air

permeation rate for the Subject Tire's inner liner, and (e) the expected level of oxidation for the Subject Tire, and air permeation rate for the Subject Tire's inner liner. Mem. in Supp. at 11-12, 17, 19-22.

While many of these points will be addressed more specifically below, it is important to first address and dispute them generally because each of them fail for the same reason. Namely, although Mr. Southwell did more than conduct a forensic examination of the Subject Tire, such an examination alone would have been sufficient to surmount the foundation/reliability assertions in Defendants' motion. There is no challenge raised in Defendants' motion that Mr. Southwell lacks experience conducting forensic examination of failed tires to ascertain the cause of failure. Nor could such a challenge be made here. See supra at 15-16. With no dispute raised as to Mr. Southwell's qualifications and experience in tire failure analysis, it follows in short order that his examination of the Subject Tire alone was a sufficiently reliable method under Daubert to ascertain the cause of the tire's failure and the points raised by Defendants are, at very best, questions for cross-examination. It is well-accepted that a tactile and visual examination of a tire will often be the method employed in conducting tire analysis. As recognized by the United States Supreme Court in Kumho Tire Co. v. Carmichael, an expert can "draw a conclusion from a set of observations based on extensive and specialized experience," and "tire abuse may often be identified by qualified experts through visual or tactile inspection of the tire." Id. at 156; see also Cone, 2017 U.S. Dist. Lexis 7262, at \*22. (rejecting HTCL's argument that tire expert's methodology was unreliable because the expert had experience in the field and "[t]ire failure analysis is highly dependent upon visual and tactile investigation."). Indeed, in Cone, the Court observed that Mr. Southwell's methodology in conducting tire failure analysis is similar to the methods used by other experts in the field in reaching their conclusions. Id. at \*9.

Although Defendants point to numerous purported deficiencies in Mr. Southwell's foundation or methodology, virtually all of their arguments fail to cite any source (much less and authoritative or objective source) to suggest that these criticisms draw upon accepted principles in the industry, so as to actually undermine the reliability of Mr. Southwell's forensic analysis. Rather, these "issues" are issues simply because Defendants state as much. Defendants liberally assert the term ipse dixit in reference to Mr. Southwell throughout their brief. Yet, in reality, the term is more appropriately directed to the nature of their challenges to Mr. Southwell's methodology and foundation. Indeed, **Defendants' own tire expert**, Joe Grant, previously rejected the need for manufacturing specifications to conduct a tire failure analysis, instead arguing that a trained tire failure analyst can deduce the "story" of a tire's design and manufacture from examining the tire itself:

Q. Do you need to know the tire specifications before you render an opinion on design or manufacturing?

A. **Actually, no.** I would offer you, many times, it's not even available. If you really are a true tire forensic expert, if you really understand the structure of a tire and understand what it takes to cause a tire to fail, it means you really understand the makeup of a well-designed and well-manufactured tire. **Realistically look at the tire and the tire tells me what I need to see, as far as, was it well designed? Does it have the components that I would expect to see and the position that I would expect to see them in? From a manufacturing standpoint, also, how would that tire actually perform and when it came apart, did it come apart in a way that I would expect a well-designed and well-manufactured tire to come apart.**

Grant Cone Dep (Ex. Y) at 152:11-153:7 (emphasis added).

Moreover, Defendants **previously admitted to this Court in this action** that all that is needed to ascertain the cause of a tire failure is a forensic examination of the tire itself. Several

months ago, the Parties appeared before the Court with regard to a trade secret dispute – namely, whether Mr. Benedict was entitled to discovery of the Subject Tire’s inner liner compound to ascertain whether the oxidation observed in the Subject Tire carcass could be attributed to a design defect in the form of HTCL allocating an insufficient amount halobutyl content to the inner liner. In resisting production of that information, Defendants took the specific position that an individual qualified in forensic tire failure would not need information regarding the Subject Tire’s rubber compounds to effectively determine the cause of a tire failure. Mem. in Opp. to Mot. Compel at 14, ECF 34, May 25, 2017. Rather, Defendants argued that “[a] forensic tire expert should be able to determine the cause of a tire failure from examination of the tire and tire pieces.” Defendants also took the additional step of appending an affidavit by one of Hankook’s design engineers, Jong Guk Kim (“Mr. Kim”), to their Memorandum in Opposition as affirmative evidence supporting this contention. In that affidavit, Mr. Kim opined as follows:

Examination of the rubber compound formulae is also not necessary **to make a determination regarding whether a particular tire was mis-manufactured or improperly designed. A forensic tire expert should be able to determine the cause of tire failure from examination of the tire itself.**

Kim Aff. (Ex. A) ¶ 33, ECF No. 34-1. (emphasis added). Mr. Kim further asserted that knowing compound formulae for a tire’s components was not necessary because it is a tire’s physical properties after vulcanization (rather than pre-cured specifications) that predict whether the tire will perform to standard and, in any event, there is no way to reliably know whether a given tire was made in compliance with the compound specification. *Id.* ¶ 32. He concluded by opining that rubber compound formulate were not necessary to a fair adjudication of this case for these various reasons. *Id.* ¶ 33.

**At a minimum**, Mr. Kim’s affidavit constitutes a party admission under Federal Rule of Evidence 801(D)(2)(a) that a forensic examination of a tire allows a duly-qualified expert to reliably ascertain the cause of its failure. However, Mr. Benedict contends that, in this instance, Defendants’ prior arguments and adoption of Mr. Kim’s opinions (both of which were contrary to their position now asserted) constitute binding judicial admissions which they cannot escape. “A judicial admission is a representation that is conclusive in the case unless the Court allows it to be withdrawn.” Meyer v. Berkshire Life Ins. Co., 372 F.3d 261, 264 (4th Cir. 2004) (internal quotations and citations omitted). Judicial admissions include “intentional and unambiguous waivers that release the opposing party from its burden to prove the facts necessary to establish the waived conclusion of law.” Id. at 264-65. Defendants’ prior representations were intentional and unambiguous—**they unequivocally urged this Court to find that a forensic examination alone would be a sufficient method to analyse the cause of the Subject Tire’s failure.** Now, because it no longer suits their interests, they wish to take a contrary position. Yet, their arguments are undone by their own party admissions and foreclosed by virtue of their judicial admission.

## **II. Mr. Southwell’s Opinion Regarding the Inadequacy of the Subject Tire’s Inner Liner Gauge is Reliable.**

Defendants raise a number of criticisms in an effort to argue that Mr. Southwell’s opinions regarding the gauge of the Subject Tire’s inner liner are unreliable. Each of these criticisms are addressed below.

First, Defendants argue that Mr. Southwell failed to account for three variables that impact oxidation – air pressure, ambient temperature, and operating temperature. Mem in Supp. at 12, 21. However, while Mr. Southwell acknowledges that these are variables that do impact the rate of oxidation, he explains in his Declaration appended hereto that none of these variables



are outside the controllable range of a manufacturer's design plan. Southwell Dec. (Ex. T) ¶¶ 29-34. In short, these variables do not inject unknown elements into the tire failure analysis that would explain how a medium truck tire with over half of its tread life remaining would have oxidation severely undermining components throughout the entirety of the tire's carcass. Southwell Dec. (Ex. T) at ¶ 34.

Second, Defendants argue Mr. Southwell disregarded the history of the Subject Tire and, more specifically, the history of "abuse" before Mr. Benedict's accident. Mem. in Supp. at 21-22. However, the reality is Mr. Southwell did not disregard anything -- all he did was simply to refuse to speculate about the Subject Tire's history. Indeed, throughout their Memorandum, Defendants have casted an illusion that the Subject Tire's history is replete with misuse and abuse, to include suggesting that the Subject Tire was "poorly maintained and improperly stored by Metro." Mem. in Supp. at 7. However, there is no competent evidence about the alleged history **of the Subject Tire** to this effect whatsoever. Henshaw Dep. (Ex. I) at 177:11-178:17. While it is true that Metro took some of its trucks out of service for varying periods of time after a downturn in business in 2008, **there is no evidence whatsoever regarding which vehicle the Subject Tire was on, whether it was in use, or its storage/maintenance conditions.** Id. What **is known** is that subsequent to the sale of the Subject Tire to Essex in May 2014, there were at least three inspections of the same specifically intended to root out tires that were unserviceable or that exhibited indicia of damage or misuse. The Subject Tire surmounted each inspection—blatantly contradicting the theory that it was the product of nonstop neglect and abuse for the first 8 years of its life. See infra Section III at 4-5. Defendants also imply multiple times that the age of the Subject Tire was a factor discarded or not properly considered. Mem. in Supp. at 6, 21, 28. However, Defendants conceded in their responses to various requests for admissions that

the chronological age of the tire had nothing whatsoever to do with the failure of the Subject Tire and this was further confirmed by their tire expert, Mr. Grant. See Southwell Rep. (Ex. C) at 25; HTCL Resp. to RFA Nos. (Ex. G) at 2-7 (responses to nos. 1,3,5,7, and 9); Grant Dep. (Ex. V) at 270:13-18. (“The age of the tire was not a factor contributing to its failure”).

Perhaps most telling as to the lack of merit in Defendants’ argument is that Mr. Grant admits to not actually knowing the history of the Subject Tire other than it had 25-30,000 miles in service. Grant Dep. (Ex. V) at 102:19-107:7, 255:17-18. The complete absence of evidence regarding the actual service history of the Subject Tire notwithstanding, Mr. Grant has no difficulty whatsoever assigning a root cause to the tire failure in this case through the same method employed by Mr. Southwell—a visual and tactile examination of the tire carcass. Grant Cone Dep. (Ex. Y) at 171:5-173:20. He opines in this case, as he always does, that a phantom impact event occurred “within the last 200 miles” of the life of the tire. Grant Dep. (Ex. V) at 163:16-23. Indeed, Mr. Grant even concedes that the history of the Subject Tire “absolutely” played no “major” role in the Subject Tire’s failure. Id. at 110:11-14.



Sixth, Defendants argue that Mr. Southwell's measurement did not account the tire's history after the accident. Mem. in Supp. at 11, 20. Mr. Southwell clearly explained the basis for his opinion that the oxidation observed in the subject tire was present at the time of its catastrophic failure:

- Q: How do you know the oxidation in this case occurred prior to the accident or after the accident?
- A: Because of the texture of the skim coat and the way in which the steel cords have become detached from the skim coat has left evidence that the skim coat was, in fact, brittle at the time the steel cords have been detached from the coat.

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- Q: Did oxidation occur during those 20 months?
- A: The rate of oxidation at ambient temperature is far lower than the rates at elevated temperature. So the oxidation that was evident in the tire at the time of my inspection was, in my opinion and experience, almost entirely a function of oxidation that took place when the tire was in service.

Southwell Dep. (Ex. U) at 98:2-9; 99:2-8. Mr. Southwell's personal industry experience is in accord with a great deal of academic research that has been conducted in recent years on the subject of tire skim coat oxidation. Southwell Dec. (Ex. T) ¶ 24.

Seventh, Defendants criticize Mr. Southwell for not doing studies to quantify the amount of oxidation in the Subject Tire. Mem. in Supp at 11. Defendants have cited no authority that such studies are necessary to make a reliable forensic examination of the Subject Tire. Indeed, Defendants' own tire expert testified recently that none of these tests were necessary to

evaluating the root cause of a tire failure. Grant Cone Dep. (Ex. Y) at 189: 15-19; 189:23-190:2; 190:7-13; see also Southwell Dec. (Ex. T) at ¶ 31.

Eighth, Defendants criticize Mr. Southwell because he could not recite the intended “air permeation rate” and could not express expected level of oxidation for the Subject Tire. In essence, Defendants asked Mr. Southwell questions that could not fairly be answered without being privy to the tire’s the belt skim compound. Southwell Dec. (Ex. T) at ¶ 34. There is no evidence such data is needed to perform a reliable tire failure analysis, any plenty of evidence to the contrary. See Southwell Dec. (Ex. T) ¶¶ 41-42; Kim Aff. (Ex. A) ¶¶ 32-33, ECF No. 34-1; Grant Cone Dep (Ex. Y) at 152:11-153:7 (emphasis added). The bottom line is there was a degree of oxidation in this Subject Tire that caused a catastrophic failure of the same despite the Subject Tire having 47% of its tread life remaining, such that it would have been expected to perform in service for tens of thousands of additional miles, at least. Southwell Rep. (Ex. C) at 8. Indeed, Mr. Grant testified that the Subject Tire “might have 25, 30,000 miles on it total” and that it was designed to last for as long as one million miles if properly maintained. Grant Dep. (Ex. V) at 255:17-18, 271:10-24; see also HTCL Dep. (Ex. D) at 84:2-23. Accordingly, HTCL’s argument should be rejected.

### **III. Mr. Southwell’s Opinion Regarding the Use of Components that had Prematurely Cross-Linked is Reliable.**

Mr. Southwell opines that the HTCL failed to exercise ordinary care in the manufacture of the Subject Tire in that it used components that had prematurely cross-linked which resulted in poor adhesion between the Subject Tire’s ply and belt components. Southwell Rep. (Ex. C) at 19-20. As an initial matter, it is important to understand that the contention that stale components can result in poor adhesion between components is by no means controversial or new. Id. at 14-15. Mr. Grant himself has testified that poor or outdated or contaminated skim

stock can result in inadequate bonding between the steel belts. Grant Cone Dep. (Ex. Y) at 30:6-31:25. The actual dispute raised by Defendants' motion is whether "liner pattern marks" or "liner imprints" in a cured tire are forensic evidence of premature cross-linking or inadequate bonding.

To advance this position, Defendants first argue that and no cited literature or public testing on liner imprints being evidence of a defect. Mem. in Supp. at 7-8. As an initial matter, the scientific principles which inform Mr. Southwell's opinion are well-studied and the subject of significant literature, including those cited in Mr. Southwell's report. Southwell Rep. (Ex. C) at 14-16. Moreover, Tom Giapponi, an individual expressly cited in Mr. Grant's report as an authority on tire failure analysis, recognized in his book that liner pattern marks can be evidence of defect. Southwell Reb. Rep. (Ex. AA) at 15-16. The same interpretation of forensic evidence was subjected to Daubert scrutiny in Cone and held reliable, as well as by several other courts. Cone, 2017 U.S. Dist. Lexis 7262, at \*22; see also Order (Ex. BB) at 4-5, 8; Order (Ex. HH) at 14-16; Order (Ex. II) at 1; Order (Ex. JJ) at 11. It is also worth noting, since Defendants make the false and unsubstantiated harangue that Plaintiff "burned through three experts," that Mr. Benedict only retained two tire experts in this case. Mem. in Supp. at 1. The other tire expert, Troy Cottles, conducted his own visual and tactile examination of the Subject Tire and reached the same conclusion as Southwell based upon the same forensic evidence without having consulted with Mr. Southwell before reaching those conclusions. Cottles Rep. (Ex. Z) at 28-31.

Second, Defendants argue that Mr. Southwell did not calculate bond deterioration, perform any experiments to test theory, or develop a formula. Mem. in Supp. at 17. In fact, however, calculating "bond deterioration" is not helpful in this case and Mr. Southwell has a significant amount of industry experience assessing the role of liner pattern marks in tire failures

during his work with Bridgestone, which followed a set methodology and confirmed his interpretation of the forensic evidence. Southwell Dec. (Ex. T) at ¶¶ 2-4, 14, 16-20. Nonetheless, Defendants contend the Court should disregard this experience because of the age of the study and the fact that Mr. Southwell cannot recall the number of tires inspected. Mem. in Supp. at 8-9, 18. These criticisms do not implicate exclusion under Daubert. Mr. Southwell has significant relevant experience, has provided a detailed explanation for his opinions grounded in science, and Defendants are doing nothing more than disagreeing with his interpretation of the forensic evidence in this case. Cone, 2017 U.S. Dist. Lexis 7262, at \*22.

Third, Defendants also criticize Mr. Southwell for not being able to apply a one-size fits all standard or percentage as to when liner pattern marks are sufficiently pervasive to cause component detachment. Mem. in Supp. at 9, 17. However, the detachment process is different for each tire because of differences in use of the tire (i.e., it may take time and use before the compromised bond ultimately gives way), and other defects within the tire as well (for example, in the Subject Tire there was a defective inner liner which allowed the components to oxidize in addition to their already compromised bond – this is a factor that also informed the role of the liner pattern marks in this case). Southwell Rep. (Ex. C) at 25.

Fourth, Defendants point to an exclusion of another witness, Rex Grogan, who Mr. Southwell cited in his report. However, neither the theory excluded nor the bases for exclusion are the same as the matter sub judice. In that case, Mr. Grogan's excluded manufacturing defect was that the tire had separated due to "wax contamination," which adversely affected the adhesion between the belt and tread, and claimed that liner pattern marks were evidence of the same. Cooper Tire & Rubber Co. v. Mendez, 204 S.W.3d 797, 802-03 (2006). The Texas Supreme Court held that Mr. Grogan's theory of wax contamination was unreliable where he had

not conducted testing nor was he aware of any testing of the effect of wax in tire adhesion and there was no evidence of general acceptance in the scientific community that wax contamination can cause tire tread to separate. Id. This is not the principle being espoused by Mr. Southwell in this case and, as stated above, he is not alone in his interpretation of the appearance of liner pattern marks the forensic evidence is not limited him alone.

Fifth, Defendants argue for exclusion on the grounds that Mr. Southwell cannot offer an “industry standard” on the storage of ply and belt components. Mem. in Supp. at 19. Defendants attempt to treat this as a lack of foundation is misleading. Mr. Southwell cannot express an “industry standard” **in a period of hours or days** because compounds vary widely in chemical composition which shapes the time in which they will scorch. Southwell Dep. (Ex. U) at 90:21-91:6. Moreover, stock periods can be prolonged through applications of chemical retardants. Id. Thus, there is no one size fits all that can be ordained to apply to every product in the tire industry and all times. Id. Rather, the “industry standard,” to the extent one must be articulated, is to identify the appropriate measures (i.e., define a proper stock period and ensure factory personnel abide by the same) in place based on the compound being used to prevent premature cross-linking occurs. Id.; see also Southwell Dec. (Ex. T) ¶ 23. To criticize this principle as something not accepted in the industry is unwarranted.

Finally, Defendants argue that Mr. Southwell does not know the storage period for the compounds and therefore cannot opine whether they were properly stored. Mem. in Supp. at 19.



Defendants’ contention that Mr. Southwell was required to know the stock period of the ply and belt components to opine whether they were timely used is made in error. The ultimate metric of whether components are timely applied **is not** whether the factory personnel adhered to designated stock period (i.e., the stock period itself could allow for too long of a period), but whether the components have been allowed to prematurely cross-link. Southwell Report (Ex. C) at 19-20, 30; Southwell Dec. (Ex. T) ¶ 23. When a component is used after this cross-linking has occurred, a finished tire will bear forensic evidence of the same in the form of liner pattern impressions – areas where interdiffusion was not achieved due to “scorch.” Id. In this case, Mr. Southwell found multiple areas of liner pattern impressions in the carcass of the Subject Tire. This supports his conclusion that due care was not used to timely assemble these components because, at bottom, it can only be explained by one of two scenarios: (a) HTCL designated an appropriate stock period for the components which manufacturing personnel failed to adhere to; or (b) the stock period designated by HTCL did not adequately compute the shelf life of the component in light of its compound. Southwell Report (Ex. C) at 38; Southwell Dec. (Ex. T) ¶ 23.

#### **IV. Mr. Southwell’s Opinion Regarding HTCL’s Woefully Deficient Quality Assurance is Reliable.**

Mr. Southwell offered a reliable standard of inspection for finished products in this case and that opinion should not be excluded. Under Virginia law, a manufacturer’s duty to test and inspect products is subsumed in its general duty of ordinary care. Jones v. Ford Motor Co., 263 Va. 237, 260-261 (2002). Mr. Southwell opined that, for a tire manufacturer such as HTCL to determine conformity with its design specifications and its durability goal, “steer tire safety critical quality monitoring must be conducted on a weekly basis, with every production batch being held in warehouse quarantine until a representative sample had been tested and confirmed

as acceptable.” Southwell Report (Ex. C) at 31. Moreover, by using statistical analysis, a manufacturer can achieve a confidence level with regard to sample representation that will operate to capture the majority of defective products. Id. at 36. By comparing HTCL’s known testing against its North American sales data (i.e., a number even lower than production data), Mr. Southwell determined that “in no way be represented to indicate the manufactured durability level of the [S]ubject [T]ire.” Id. at 31, 36.

Defendants assail the reliability for a number of reasons. First, they argue that FMVSS testing is the sole industry standard and the Subject Tire passed FMVSS 119. However, Defendants own QA documents and party admissions betray their contentions.

Moreover, Mr. Southwell explained that these practices were routinely followed by other tire manufacturers in his experience. Southwell Rep. (Ex. C) at 31.

Even if FMVSS 119 were the sole industry standard, Virginia law does not allow a manufacturer to defend itself by relying on an unsafe industry standard. Turner v. Manning, Maxwell & Moore, Inc., 216 Va. 245, 251 (1975) (citing Bly v. Southern Ry. Co., 183 Va. 162, 172-74 (1944)). Indeed, Mr. Kim’s affidavit plainly acknowledges the need to inspect finished tires to ensure the tire possesses the physical properties needed to achieve expected performance. Kim Aff. ¶ 32, ECF No. 34-1. The need for additional testing beyond FMVSS 119 is obvious. For tires that will be sold in the United States, a manufacturer is required to conduct a test the tire (or another sharing the same “green tire specifications”) in accordance with testing regime of 49 C.F.R. § 571.119 (“FMVSS 119”) prior to commencing production.

Southwell Rep. (Ex. C) at 32-35. The test involves subjecting one new tire to a “wheel test,” another new tire to a “plunger” test. Id. These tests are destructive and the regulation does not require additional testing once a single tire has passed the test. In short, FMVSS 119 tests the performance and durability of a tire’s intended design, but does not provide any level of monitoring over manufacturing quality (i.e., whether the tires being manufactured on a weekly basis comport with the design of the tire which had passed the testing). Id. Indeed, during the time that the Subject Tire was sold into the stream of commerce, HTCL released over 7000 defective Aurora tires into the stream of commerce, each one of which had supposedly complied with federal testing regulations. Hankook Defect Notice (Ex. GG) at 1-5.

HTCL claims that Mr. Southwell is in error to conclude that the testing documentation he was provided constitutes the sum of the testing data being conducting by HTCL on the Subject Tire. Mem. in Supp. at 19.

Defendants also argue that Mr. Southwell's opinion is speculative because he could not answer regarding the exact number of TH08 tires HTCL should have tested. Southwell Dep. (Ex. U) at 147:5-11. However, the scope of the question did not specify either a period of time or a particular HTCL plant, and therefore was patently unanswerable. HTCL only provide a limited scope of TH08 production data for a single plant in this case and could not even locate the entirety of production data for that plant. HTCL Interrogatory Answer 6 (Ex. E). These are necessary data points required for Mr. Southwell needed to answer this question the extremely broad question posed, which were not available to him through no fault of his own and therefore do not implicate the reliability of his analysis.

**V. Mr. Southwell did not Fail to Consider Other Potential Causes or Details About the Subject Tire's Service History**

Hankook asserts that Mr. Southwell failed to consider impact as a potential root cause of the failure. Defs.' Mem. at 26-27. This claim is false. Impact as a potential cause was

considered and rejected by Mr. Southwell because the forensic examination of the Subject Tire did not support such a conclusion. Southwell Rep. (Ex. C) at 27-28; Southwell Dep. (Ex. U) at 128:12-20, 212:21-25. Defendants also wrongly assert that Mr. Southwell failed to adopt an impact theory based on testimony by Mr. Benedict that he “**possibly**” had a non-memorable impact at some undetermined point in time. Benedict Dep. (Ex. EE) at 149:20-150:6. This is hardly evidence that such an impact occurred.

Defendants also that Mr. Southwell failed to rule out that two cuts observed in the carcass of the Subject Tire played any role in its failure. Mem. in Supp. at 28. This is untrue. Mr. Southwell identified these cuts on page 8 in his report and rules out a cut-related separation on 27 of the same. Defendants seized upon language on Page 27 that “no specific cut site is observable” to imply Mr. Southwell arbitrarily disregarded the presence of the cuts on the Subject Tire (an argument dispelled by his acknowledgment of the cuts on Page 8). His opinion is that not cut sites were observed at “the point of initiation” of the separation at issue in the case. Southwell Rep. (Ex. C) at 27. Moreover, **both** Mr. Southwell and Mr. Grant considered, photographed, measured, probed and conclusively **ruled out** the cuts as a cause of the Subject Tire failure. Grant Dep. (Ex. V) at 127:9-24; 128:7-10; Southwell Dep. (Ex. U) at 42:8-23, 214:12-20. Accordingly, Defendants’ arguments should be rejected.

**VI. Mr. Southwell is Qualified to Opine on the HTCL’s Lack of Due Care in Manufacturing the Subject Tire**

Contrary to HTCL’s argument, Mr. Southwell’s extensive experience in the realm of tire manufacturing enables him to testify about HTCL’s lack of due care in the manufacturing process. Mr. Southwell’s experience has been thoroughly outlined in his CV, Declaration and

Report and further explained throughout this response. See supra at 69. It is important to note that Mr. Southwell's career at Bridgestone began as an Original Engineering and Product Coordinator, in which he worked one on one with production technical staff at the Salisbury Manufacturing Plant in all aspects of manufacturing activities including but not limited to, raw material testing to ensure compliance with specifications, mixing compounds in the Banbury, extrusion to make individual components, bias cutting of steel, polyester and nylon fabric to make body ply, belt and other components, tire building (assembly of the components on a tire building machine to form a "green tire"), curing (vulcanization), final inspection, uniformity and other quality checks, and indoor and outdoor tyre durability testing and testing for legal and other compliance. Southwell Dec. (Ex. T) ¶ 3. Throughout his career Mr. Southwell has been tasked with determining the root cause of failing tires and working within the factories to develop and implement countermeasures to overcome them. This is precisely the issue that Mr. Southwell is addressing in this case, the fact that HTCL had inadequate manufacturing protocol that directly contributed to the defective Subject Tire being released into the stream of commerce.

### **CONCLUSION**

For the foregoing reasons, Mr. Benedict requests that the Court deny Defendants' Motion and grant him any other relief deemed appropriate.

DATE: November 6, 2017

Respectfully Submitted,

ROBERT BENEDICT

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**CERTIFICATE OF SERVICE**

I certify that on November 6, 2017, I filed the foregoing filing using the Court's CM/ECF system which sent electronic notification of this filing to the following counsel of record:

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